What is claimed is:

1. An automated container management system, comprising:

a conveyor system for transporting multiple containers;

a container stack;

at least one robotic device having a container cooperation head, the container cooperation head having magnetic lift assemblies for stacking and unstacking multiple containers as a single unit between the conveyor system and the container stack; and

a container inverting apparatus that inverts the multiple containers before stacking and after unstacking.

2. The system of claim 1, further comprising a container storage and retrieval system that services the container stack.

3. The system of claim 2, wherein the container storage and retrieval system includes a transfer vehicle.

4. The system of claim 1, wherein the container inverting apparatus includes radially extending engagement arms, each engagement arm having a containment plate wherein the containment plate and an opposing engagement arm form a space to capture a container therebetween when the engagement arms are rotated about a central axis.

5. The system of claim 1, wherein the container inverting apparatus includes radially extending engagement arms wherein an opposing arm has a clamp assembly for engaging

a surface of each of the containers before each of the containers is rotated about a central axis.

6. The system of claim 1, wherein the container cooperation head is attached to a robotic manipulator of the robotic device such that the container cooperation head rotates about a vertical axis relative to the robotic manipulator.

7. The system of claim 1, wherein each of the magnetic lift assemblies are pneumatically driven between a first position and a second position and in the first position a magnet for holding the multiple containers is positioned above a fixed bottom surface of the magnetic lift assembly and in the second position the magnet is positioned below the fixed bottom surface of the magnetic lift assembly such that when the magnetic lift assembly is driven from the second position to the first position, the multiple containers are released from the magnet by the fixed bottom surface of the magnetic lift assembly.

8. The system of claim 7, wherein each of the magnetic lift assemblies is pneumatically driven by a separate air cylinder.

9. The system of claim 7, wherein a plurality of the magnetic lift assemblies is pneumatically driven by a plurality of the air cylinders.

10. The system of claim 7, wherein a plurality of the magnetic lift assemblies is pneumatically driven by a single air cylinder.

11. The system of claim 1, wherein each of the magnetic lift assemblies has at least one magnet for holding the multiple containers, each of the magnets freely moves in at least two axes relative to a surface of the multiple containers.

12. The system of claim 1, wherein the container cooperation head includes at least one proximity sensor for sensing the presence of the multiple containers.

13. The system of claim 1, wherein the multiple containers are stacked on the container stack in a nested manner with an open-side facing downward.

14. The system of claim 1, wherein the container stack is arranged on a conveyorized container stacking station.

15. The system of claim 1, wherein the container stack is fixed stacking station.

16. The system of claim 1, wherein the container stack is formed to be manually re-positioned by an operator.

17. The system of claim 1, wherein the containers are baking pans.

18. The system of claim 1, wherein each of the magnet lift assemblies includes a compression spring for vertical compensation of the magnetic lift assembly relative to a surface of the multiple containers.

19. The system of claim 18, wherein the container cooperation head includes a photoelectric sensor that senses when each of the magnetic lift assemblies is vertically compressed.

20. An automated container management system, comprising:

a conveyor system for transporting multiple containers;

a container stack;

at least one robotic device having a container cooperation head, the container cooperation head having a means for stacking and unstacking the multiple containers as a single unit between the conveyor system and the container stack;

a container storage and retrieval system that services the container stack; and

an inverting apparatus that inverts the multiple containers before stacking and after unstacking.

21. The system of claim 20, wherein the means for stacking and unstacking the multiple containers is a plurality of magnetic lift assemblies.

22. The system of claim 21, wherein each of the magnetic lift assemblies has at least one magnet for holding the multiple containers, each of the magnets freely moves in at least two axes relative to a surface of the multiple containers.

23. The system of claim 22, wherein each of the magnet lift assemblies includes a compression spring for vertical compensation of the magnetic lift assembly relative to a surface of the multiple containers.

24. The system of claim 23, wherein the container cooperation head includes a photoelectric sensor that senses when the magnetic lift assembly is vertically compressed.

25. The system of claim 22, wherein each of the magnetic lift assemblies is pneumatically driven between a first position and a second position and in the first position a magnet for holding the multiple containers is positioned above a fixed bottom surface of the magnetic lift assembly and in the second position the magnet is positioned below the fixed bottom surface of the magnetic lift assembly such that when the magnetic lift assembly is driven from the second position to the first position, the multiple containers are released from the magnet by the fixed bottom surface of the magnetic lift assembly.

26. The system of claim 25, wherein each of the magnetic lift assemblies is pneumatically driven by a separate air cylinder.

27. The system of claim 25, wherein a plurality of the magnetic lift assemblies is pneumatically driven by a single air cylinder.

28. The system of claim 25, wherein a plurality of the magnetic lift assemblies is pneumatically driven by a plurality of the air cylinders.

29. The system of claim 20, wherein the container cooperation head is attached to a robotic manipulator of the robotic device such that the container cooperation head rotates about a vertical axis relative to the robotic manipulator.

30. The system of claim 20, wherein the multiple containers are stacked on the container stack in a nested manner with an open-side facing downward.

31. The system of claim 20, wherein the container inverting apparatus includes radially extending engagement arms, each engagement arm having a containment plate wherein the containment plate and an opposing engagement arm form a space to capture a container therebetween when the engagement arms are rotated about a central axis.

32. The system of claim 20, wherein the container inverting apparatus includes radially extending engagement arms wherein an opposing arm has a clamp assembly for engaging a surface of each of the containers before each of the containers is rotated about a central axis.

33. The system of claim 20, wherein the containers are baking pans.

34. A method for storing bread pans, comprising:

advancing multiple bread pans with a conveyor assembly toward an inverting apparatus with an open side facing upward after the multiple bread pans leave a bread removal process;

inverting the multiple bread pans with the inverting apparatus such that the open side faces downward;

transferring the multiple bread pans having the open side facing downward from the conveyor assembly to a container stack with a lift assembly of a robotic device; and

stacking the multiple bread pans in a nested manner with the robotic device with the open side facing downward.

35. The method of claim 34, further comprising:

transferring the multiple bread pans having the open side facing downward from the container stack to the conveyor assembly with a lift assembly of another robotic device;

advancing the multiple bread pans with the conveyor assembly toward another inverting apparatus with an open side facing dwnward; and

inverting the multiple bread pans with the other inverting apparatus such that the open side faces upward.

36. The method of claim 35, further comprising storing the multiple bread pans with a container storage and retrieval system transfer vehicle.

37. The method of claim 35, wherein the lift assembly is magnetic.

38. The method of claim 35, further comprising storing the multiple bread pans with a conveyorized container stacking station.

39. The method of claim 35, further comprising storing the multiple bread pans with a manually re-positioned cart.

40. The method of claim 35, further comprising storing the multiple bread pans on a fixed stacking station.